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ABSTRACT

Recently, reports have indicated that, after years of steady decline, infant mortality has begun to increase in a number of communities throughout the United States. Many of these reports come from areas experiencing high levels of unemployment. While the dimensions and causes of this problem are not entirely understood, strong indications exist that this situation can be attributed to some degree to both the current recession and the cutbacks in those health care programs that have in the past been effective in helping reduce infant mortality. To assist members of the Congressional Subcommittee on Health and the Environment, background information was assembled for this report. The information includes a discussion of the causes of infant mortality, data concerning infant mortality and low birth weight, and information on federal programs affecting maternal and child health. A glossary of specific terms used in the report is provided. (RH)

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INFANT MORTALITY

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A REPORT

PREPARED BY THE

CONGRESSIONAL RESEARCH SERVICE

FOR THE USE OF THE

SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT

OF THE

COMMITTEE ON ENERGY AND COMMERCE

U.S. HOUSE OF REPRESENTATIVES

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LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT,
Washington, D.C., June 1983.

Hon. JOHN D. DINGELL,
Chairman, Committee on Energy and Commerce,
Washington, D.C.

DEAR MR. CHAIRMAN: The attached report prepared by the Congressional Research Service, at the request of the Subcommittee on Health and the Environment, contains background information and statistical data on the problem of infant mortality. This problem is of great concern, especially in those areas now experiencing high levels of unemployment and the effects of the deep recession.

I believe this report will be extremely helpful to the Members of the Energy and Commerce Committee in their understanding of the dimensions and causes of infant mortality. In particular, the report should be of great value as a resource document for oversight hearings on this issue. The Subcommittee is planning to hold such hearings this Congress.

HENRY A. WAXMAN,
Chairman, Subcommittee on Health
and the Environment.

INTRODUCTION

Recently, there have been disturbing reports that, after years of steady decline, infant mortality has begun to increase in a number of communities throughout the country. Many of these reports come from areas experiencing high levels of unemployment. In Michigan, for example, where unemployment is virtually at depression levels, State officials have reported an increase in the infant death rate for the 1980–1981 period that is the greatest since World War II.

While the dimensions and causes of this problem are not entirely understood, there are strong indications that it can be attributed, to some degree, to both the current recession and the cutbacks in those health care programs which have in the past, been effective in helping to reduce infant mortality. Unemployment, for example, has resulted in the loss of health insurance for thousands of pregnant women which, in turn, has forced them, in many cases, to delay prenatal care or to forego it altogether. Cutbacks in health programs such as Medicaid, maternal and child health services, community health centers, and family planning, have also resulted in loss of access to needed services.

We as a nation cannot afford any setbacks in our fight against infant mortality. So much remains to be done. For example, even though our national infant mortality rate in 1982 (provisionally, 11.2 deaths per 1,000 live births) was the lowest in our history, it is still higher than those of other industrialized nations, including Sweden, Japan, France and Canada. Moreover, the infant mortality rate for Blacks, while declining, remains roughly twice as high as that for the White population. We must work to eliminate these differences.

Nor can we afford to allow the welcome decline in national infant mortality rates to distract us from contrary trends at the community or regional level. The impact of the curent economic recession has not been spread evenly among all areas of the country. We need to learn as much as possible about the infant mortality trends in those areas bearing the brunt of the recession. Where problems are identified, we must respond quickly.

To assist the Members of the Subcommittee in understanding this issue, I have asked the Congressional Research Service (CRS) of the Library of Congress to assembie background information. The document which follows includes: (1) a discussion of the causes of infant mortality; (2) infant mortality and low birth weight data; and (3) information on Federal programs affecting maternal and child health. A glossary of certain terms used in the report is included as well.

The Committee wishes to express its appreciation to CRS for its assistance.

HENRY A. WAXMAN,
Chairman.

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INFANT MORTALITY

I. WHAT IS INFANT MORTALITY

Infant mortality is the death of a live born infant under one year of age, and is usually expressed as a rate per 1,000 live births. Neonatal deaths, or deaths of infants under 28 days account for about 70 percent of infant deaths. 1/ The first year of life is the most hazardous period until age 65. 2/ Major causes of infant mortality are low birth weight and birth defects.

II. CAUSES OF INFANT MORTALITY

A. Low Birth Weight

Approximately two-thirds of all infant deaths occur in infants weighing less than 5.5 pounds (2,500 grams) at birth. 3/ Low birth weight infants may be either premature, that is born before 37 weeks of gestation, or full term, but small for their gestational age. A number of factors contribute to low birth weight, including lack of or poor prenatal care, poor maternal nutrition, maternal age, bearing children at less than two year intervals, smoking and alcohol and drug use and abuse, and social and economic background.

Prenatal Care. Certain evidence indicates that a lack of prenatal care can contribute to women delivering low birth weight babies. 4/ Given no prenatal care, an expectant mother is three times more likely to deliver a low birth weight child. 5/ Prenatal care helps insure that (1) the expectant mother maintains good health and proper diet; (2) any medical or other problems are detected early and promptly managed; and (3) the expectant mother is educated about health care and nutrition during pregnancy, childbirth, and infant care. According to American College of Obstetricians and Gynecologists (ACOG) standards, a pregnant woman should begin prenatal care

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1/ U.S. Congress. Senate. Labor and Human Resources Subcommittee on Child and Human Development. Oversight on Efforts to Reduce Infant Mortality and to Improve Pregnancy Outcome. Hearings, 96th Congress, 2nd session. June 30, 1980. Washington, U.S. Govt. Print. Off., 1980. p. 68.

2/ U.S. Department of Health, Education, and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention. (Washington) 1979. p. 3-1.

3/ U.S. Congress. Senate. Labor and Human Resources Subcommittee on Child and Human Development. Oversight on Efforts to Reduce Infant Mortality and to Improve Pregnancy Outcome, 1980. p. 68.

4/ A January 1983 report by the Michigan Public Health Department noted that in 1978, approximately 10,000 of the 140,000 women who gave birth that year received less than 5 prenatal visits. Of these women receiving less than 5 prenatal visits, 20.3 percent gave birth to low birth weight babies, compared to 5.7 percent for women receiving 6 or more prenatal visits.

5/ U.S. Department of Health and Human Services. Better Health for Our Children: A National Strategy. The Report of the Select Panel for the Promotion of Child Health, Vol. 1. 1981. p. 27.

during the first trimester and ideally should be seen at least once every 4 weeks for the first 28 weeks of pregnancy, every 2 to 3 weeks until the 36th week, and weekly thereafter. Women with health problems should be seen more frequently. 6/

Partly because they are less likely to receive prenatal care, and often because of young age, unmarried women bear more low birth weight babies. Overall, in 1980, the incidence of low birth weight was twice as high for infants born out of wedlock (11.6 percent) than for other infants (5.8 percent). 7/

Maternal Nutrition. Although an undernourished mother may produce a healthy child, studies of nutrition of women during pregnancy have shown a definite relationship between the adequacy of the mother's diet during certain stages of pregnancy and the condition of the baby at birth. Fetal growth is affected by maternal food intake, as well as other changes that occur in the mother during pregnancy. 8/ Infants born in a nutritionally deprived state may experience such health problems as brain growth retardation, and delayed bone calcification (the process by which the bone becomes hardened by the depositing of calcium salts). Infants that experience these nutrition-related problems often expend their energy on staying alive rather than on normal growth and development. 9/

Because they are eating for two, pregnant women must consume more than the amount of nutrients needed in the pregravid state (prior to pregnancy). Obviously, a pregnant woman's diet should include items from each of the traditional food groups of fruits/juices and vegetables; milk/cheese; meat/dry beans; and breads/cereals. An inadequate diet for a pregnant woman is usually low in certain significant food nutrients such as protein, calcium and iron, and may be missing one food group, such as milk, entirely. The number of servings and amounts a pregnant woman needs from each of these food groups varies depending on several factors such as the individual's age and weight. A pregnant teenager, who is still growing, most likely would need more servings from these food groups than a pregnant woman of 25.

Maternal Age. Maternal age is another determinant of infant health. Teenage mothers are twice as likely as other women to give birth to low birth weight babies. 10/ It is unclear why so many teenage mothers bear premature or low birth weight infants. It may

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6/ American College of Obstetrics - Gynecologists. Standards for Obstetric - Gynecologic Services, 1982. pp. 11-12.

7/ Unpublished data, National Center for Health Statistics, Public Health Service, Department of Health and Human Services, 1983.

8/ Hoekelman, Robert A., Saul Blatman, Philip A. Brunnel, Stanford B. Friedman, and Henry M. Seidel. Principles of Pediatrics. McGraw-Hill Book Company. (New York), 1978, p. 363.

9/ Michigan Department of Public Health. The Impact of Unemployment on the Health of Mothers and Children In Michigan, Recommendations for the Nation. January 1983, p. 17.

10/ U.S. Department of Health, Education and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention, p. 3-7.

be that a girl's reproductive organs may not be sufficiently mature to carry a baby without undue stress. A teenage mother is also less likely to have a balanced diet and regular prenatal care. 11/ Low birth weight is also increased for women giving birth after age 35.

Frequency of Giving Birth. Bearing children at frequent intervals, particularly at intervals of less than 2 years, can affect low birth weight, as well as other medical conditions which may adversely affect the health of mothers and children. These conditions include, among others, hemorrhage, and rupture of the uterus. 12/

Smoking and Alcohol and Drug Use and Abuse. Smoking, and alcohol and drug use and abuse during pregnancy can affect the infant's health status. Smoking slows fetal growth, doubles the chance of low birth weight, and increases the chance of stillbirth. According to some studies, smoking may be a significant contributing factor in 20 to 40 percent of low birth weight infants born in the United States and Canada. 13/ No safe levels exist for the intake of alcohol and most legal or illegal drugs during pregnancy. Certain evidence indicates that even small amounts of alcohol or drugs when ingested by pregnant women at critical points in the baby's development in utero can cause premature delivery, low birth weight, and serious illness or birth defects in infants. 14/

Social and Economic Background. Socioeconomic and racial factors also contribute to the incidence of low birth weight babies. More low birth weight babies are born to families of other races than to White families. Twelve to fourteen percent of Black, Hispanic, and Native American births result in low birth weight babies but only 5 to 6 percent of White infants weigh less than 5.5 pounds. 15/ According to some studies, socioeconomic factors may have as much influence as race in determining an infant's birth weight. Certain reports indicate that the birth weight of middle income Blacks is comparable to middle income Whites. 16/

It has been suggested that the primary influence of socioeconomic status may be its impact on low birth weight, rather than as an independent determinant of infant mortality. 17/ One of the most useful measures of socioeconomic status is the mother's educational attainment. A 1980 Department of Health, Education, and Welfare study

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11/ U.S. Department of Health, Education, and Welfare. The Low Birth Weight Baby, May 1976. p. 3.

12/ Michigan Department of Public Health. The Impact of Unemployment on the Health of Mothers and Children in Michigan, Recommendations for the Nation. p. 17.

13/ U.S. Department of Health, Education, and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention, p. 3-7.

14/ Michigan Department of Public Health. The Impact of Unemployment on the Health of Mothers and Children In Michigan. Recommendations for the Nation. p. 18.

15/ Ibid.

16/ Ibid.

17/ Hadley, Jack. More Medical Care, Better Health? Urban Institute Press. (Washington), 1982, p. 36.

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cited the mother's educational attainment as one of the most critical factors correlating with birth weight. 18/ In 1980, the proportion of infants of low birth weight born to mothers with 16 years or more of education was half that of infants born to mothers with less than 9 years of education. 19/

B. Birth Defects

About one sixth of all infant deaths are related to birth defects. These defects include congenital physical abnormalities, mental retardation, and genetic disorders. The congenital defects most likely to cause death include malformations of the brain and spine, heart defects, and combinations of other serious abnormalities. 20/ Although it is not always possible to isolate the specific cause of a given birth defect, about one fourth of the cases are thought to be of genetic origin, while another 10 percent are attributed to environmental factors. In the majority of cases, the cause is unknown, but researchers suspect that the interaction between genetic and environmental factors plays an important role in the development of many congenital and prenatal problems. 21/

Although more than 2,000 genetic disorders exist, only about 20 cause the major genetic diseases in this country. Several major types of genetic disease are responsible for most illness and death. They are chromosomal aberrations (such as those responsible for Down syndrome), some brain and spinal cord abnormalities (such as certain of the neural tube defects), defects related to particular ethnic groups, sex-linked defects, and metabolic disorders. 22/

Down syndrome is associated with the presence of an extra chromosome, and occurs in about one of every 1,000 births. Children with Down syndrome experience various physical defects, some of which require lifelong care. 23/ Among the most frequent malformations associated with Down syndrome is congenital heart disease. 24/ In addition, 15 to 30 percent of children with severe mental retardation who live beyond age 10 suffer from Down syndrome. 25/ The risk of

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18/ U.S. Department of Health, Education, and Welfare. Factors Associated with Low Birth Weight. (Hyattsville, Md.) April 1980, p. 2.

19/ Unpublished data, National Center for Health Statistics, Public Health Service, Department of Health and Human Services, 1983.

20/ U.S. Congress. Senate. Labor and Human Resources Subcommittee on Child and Human Development. Oversight on Efforts to Reduce Infant Mortality and to Improve Pregnancy Outcome, 1980, p. 69.

21/ Ibid.

22/ Ibid. p. 71

23/ U.S. Department of Health, Education, and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention, p. 3-9.

24/ Hoekelman, Robert A., Saul Blatman, Philip A. Brunell, Stanford B. Friedman, and Henry M. Sudel. Principles of Pediatrics, p. 352.

25/ U.S. Congress. Senate. Labor and Human Resources Subcommittee on Child and Human Development. Oversight on Efforts to Reduce Infant Mortality and to Improve Pregnancy Outcome, 1980, p. 71.

bearing a Down syndrome child increases with maternal age, especially after age 35.

Neural tube defects occur when there is a lack of development of parts of the central nervous system or its skeletal protection. These defects include spina bifida (literally, a "cleft spine"), various other malformations of the neural tube, and anencephaly (very small or absent head and brain). About 2 in every 1,000 infants suffer from these defects, half of whom die in the newborn period. These defects are 2.5 times more likely to occur in Whites than in other racial groups. 26/

Defects related to particular ethnic groups include Tay-Sachs disease, sickle cell anemia, and Cooley's anemia, among others. Tay-Sachs occurs most frequently among Jewish families of Eastern European descent. The disease is caused by accumulation of a fatty substance in the brain. Tay-Sachs children appear normal at birth, but die by age 5 as a result of severe mental retardation and progressive deterioration. 27/ Sickle cell anemia, in which red blood cells are damaged because of altered stability of their hemoglobin content, occurs most frequently among Blacks. 28/ Cooley's anemia, or thalassemia, also affects the hemoglobin molecule but in a different manner. The anemia is most common among Greeks, Italians or other individuals of Mediterranean descent. Another genetic disease, which is more prevalent in Whites, is cystic fibrosis. This disease causes abnormal production of mucus, resulting in chronic lung obstruction and disability during childhood and early adult life. 29/

Sex-linked defects include such congenital disorders, as some hemophilias and certain of the muscular dystrophies, which affect the sons of mothers who carry an abnormal X chromosome. Hemophilia results in blood clotting deficiencies. Muscular dystrophy results in gradual muscular weakness and wasting. 30/

The best known metabolic disorder is PKU (phenylketonuria). This genetic disorder results in an enzyme deficiency which allows the amino acid phenylalanine to accumulate abnormally. As a result, without proper diet, brain function is impaired and mental retardation can occur. 31/

Exposure of the fetus to infections or toxic agents during pregnancy, particularly during the first trimester, can also cause birth defects. Infections such as rubella (German Measles) when they affect

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26/ U.S. Department of Health, Education, and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention, p. 3-10.

27/ Ibid.

28/ Ibid.

29/ U.S. Congress. Senate. Labor and Human Resources Subcommittee on Child and Human Development. Oversight on Efforts to Reduce Infant Mortality and to Improve Pregnancy Outcome, 1980, p. 72.

30/ U.S. Department of Health, Education and Welfare. Healthy People -- The Surgeon General's Report on Health Promotion and Disease Prevention, p. 3-11.

31/ Ibid.

a mother during the first trimester, can cause congenital malformations as well as stillbirth and miscarriage. Exposure to radiation and chemicals in the workplace or other environment, as well as to drugs and alcohol have also been linked to birth defects. 32/

C. Other Factors

Other factors causing infant death include birth injuries, difficult labor, and conditions which may result in a lack of adequate oxygen for an infant. Sudden Infant Death Syndrome (SIDS), which causes certain babies, without apparent cause or warning, suddenly to stop breathing and die, can occur after an apparently uncomplicated pregnancy and birth. According to some authorities, SIDS is one of the leading causes of death for infants older than one month. 33/

32/ Ibid. p. 3-12.
33/ Ibid. p. 3-15.

III. INFANT MORTALITY AND LOW BIRTH WEIGHT DATA

This section presents selected available data by:

1) State and region, according to race, for the three average annual periods 1967-69, 1972-74, 1977-79, and (provisional data)* for 1980, 1981, 1982;

2) selected cities, according to race, for 1970, 1975, and 1979;

3) race for the total United States, 1940-1982, and by race or national origin for the total United States, 1970 and 1975;

4) selected industrialized nations, 1970, 1975, and 1979/1980; and

5) percent low birth weight by race for the United States and each State, 1975 and 1980.

A. Limitations on Data

The latest available final infant mortality data are for 1979. Because the provisional data (1980, 1981 and 1982) are collected for the individual States by place of occurrence, and the final data are calculated back to the place of residence of the mothers and infants, the two sets of data are not completely comparable. 34/ Another important consideration in analyzing infant mortality data is that rates can tend to vary greatly from year to year, especially at the city and State levels. 35/ This is in part a function of the relatively small numbers of cases used to calculate both city and State rates. It is for this reason that table 1 is presented in terms of 3-year annual averages for the periods 1967-69, 1972-74, 1977-79, and 1980-82. In this way, some of the random annual variations may be compensated for over time.

34/ Telephone conversation with Dr. Joel Kleinman, National Center for Health Statistics, Department of Health and Human Services, April 28, 1983.

35/ Ibid.

*Provisional data are based on place of occurrence, rather than place of residence.

B. Trends

While the overall trend in infant mortality rates for the past 30 years in the United States has been downward, this does not preclude the possibility that there may be geographic pockets or certain population groups in which the rates have actually increased during a given interval within that time period.

The overall downward trend in total U.S. infant mortality is best illustrated in table 4, which presents final data, by race, for a 30 year period. (The provisional data in table 4 for 1980, 1981, and 1982 also indicate that this trend is continuing.) Perhaps the most striking fact illustrated by the table is that the Black infant mortality rate has been much higher than the White infant mortality rate over the entire 30 year period, and in most cases has been almost twice as high. Because the overall rates for both races have been declining at about the same rate, this nearly 2:1 ratio has continued.

The higher Black infant mortality rates may be at least partly responsible for the regional differences in rates, as illustrated in tables 1 and 2. For example, the South Atlantic and East South Central States have shown consistently higher total infant mortality rates, and they also have a higher proportion of Black infants.

The data for individual cities included in table 3 do not necessarily reflect this regional trend, although, as mentioned above, the relatively small numbers of cases upon which city rates are calculated make these data less comparable.

International comparisons of selected infant mortality data are shown in tables 6 and 6a. The United States has consistently ranked in the low to middle range among the 13 selected industrialized nations for the years presented.

The U.S. trends in incidence of low birth weight shown in tables 7 and 7a have not shown as dramatic a decline as have the trends in total infant mortality. Although infants' weight at birth contributes significantly to their survival and health throughout infancy and early childhood, the greatly improved survival of low birth weight infants has reduced mortality rates more than morbidity rates in this area.

C. Infant Mortality Rates By State, According to Race

As shown in table 1, over the three average annual periods, 1967-69, 1972-74, and 1977-79, the total infant mortality rate steadily declined for all 50 States and the District of Columbia. The U.S. total infant mortality rate declined from 21.7 to 17.6 per 1,000 live births between the 1967-69 and 1972-74 periods (a 19 percent decrease) and from 17.6 to 13.6 per 1,000 live births between the 1972-74 and 1977-79 periods (a 23 percent decrease).

Over the same three periods the White infant mortality rate steadily declined as well, except for Alaska's rate, which fluctuated. The U.S. White infant mortality rate declined from 19.1 to 15.7 per 1,000 live births between the first two periods (an 18 percent decrease), and from 15.7 to 11.9 per 1,000 live births between the last two periods (a 24 percent decrease).

The U.S. Black infant mortality rate steadily declined over these three average annual periods in 42 States, while it fluctuated in:

Alaska
District of Columbia
Idaho
Rhode Island
South Dakota
Utah
Vermont
Wyoming

and rose in North Dakota. The total U.S. Black infant mortality rate declined from 36.1 to 28.2 per 1,000 live births between the first two periods (a 22 percent decrease), and from 28.2 to 22.8 per 1,000 live births between the last two periods (a 19 percent decrease).

Provisional data in table 2 show that the U.S. total infant mortality rate declined from 13.6 to 11.2 per 1,000 live births between the 1977-79 and 1980-82 periods (a 17.6 percent decrease). According to this data, infant mortality rates declined for all States except Utah (an increase of 10.7 to 11.3 per 1,000 live births) and the District of Columbia (an increase of 25.6 to 25.9 per 1,000 live births) during this period. As shown in table 2, the highest infant mortality rates for 1980-1982 were found in the District of Columbia, South Carolina, and Mississippi. Provisional data according to race is not available.

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Table 1.

Infant mortality rates, according to race, geographic division, and States: United States, average annual 1967-69, 1972-74, and 1977-79

Data are based on the national vital registration system

Geographic division and State	1967-69[1]			1972-74			1977-79		
	Total[2]	White	Black	Total[2]	White	Black	Total[2]	White	Black
	Infant deaths per 1,000 live births								
United States	21.7	19.1	36.1	17.6	15.7	28.3	13.4	11.9	22.8
New England	19.6	18.9	36.0	15.4	14.9	26.3	11.5	10.9	21.3
Maine	21.5	21.5	*27.6	16.9	17.0	*6.1	9.9	10.0	*6.0
New Hampshire	20.6	19.9	*30.3	15.7	15.7	*20.0	10.4	10.3	*7.7
Vermont	20.3	20.3	*16.4	14.6	14.7	*	10.7	10.7	*14.4
Massachusetts	19.4	18.8	33.5	14.7	14.1	25.1	11.3	10.9	18.4
Rhode Island	20.1	19.1	43.2	17.4	16.7	30.8	13.3	12.8	22.5
Connecticut	19.9	17.6	31.8	15.7	14.4	26.9	12.4	11.6	23.9
Middle Atlantic	21.4	18.7	34.9	17.0	14.9	27.9	13.6	11.9	23.4
New York	21.4	18.3	35.1	17.0	14.8	27.8	14.0	12.0	23.8
New Jersey	21.8	17.7	37.0	16.7	14.0	28.5	13.4	10.9	23.3
Pennsylvania	21.7	19.4	32.6	17.3	15.6	26.6	13.7	12.4	22.7
East North Central	21.3	19.3	35.6	17.9	15.9	28.4	13.9	12.1	24.3
Ohio	20.1	18.6	32.6	17.3	15.7	28.6	13.3	12.1	21.3
Indiana	21.6	20.2	35.0	17.8	16.6	28.5	13.4	12.4	22.6
Illinois	23.1	19.8	37.7	19.0	16.7	29.1	13.6	11.6	27.9
Michigan	21.3	19.1	35.4	18.6	15.3	31.1	13.7	11.8	25.9
Wisconsin	18.8	17.9	34.1	16.1	13.9	23.8	11.1	10.7	19.1
West North Central	19.6	18.4	34.9	16.6	15.7	28.8	12.6	11.7	24.4
Minnesota	19.3	18.1	35.8	15.8	15.4	28.6	11.3	10.9	24.4
Iowa	19.1	18.8	37.4	15.9	15.8	24.9	11.8	11.6	22.9
Missouri	21.7	19.8	37.8	17.6	16.5	28.8	14.3	13.2	25.4
North Dakota	18.3	18.1	*6.9	14.1	13.4	*17.7	13.8	12.4	*13.7
South Dakota	18.9	18.5	*25.3	15.4	17.4	*25.5	13.6	13.1	*26.7
Nebraska	19.3	17.3	35.5	16.7	15.3	32.1	13.4	11.9	23.9
Kansas	19.1	18.9	34.9	16.3	15.9	34.4	13.4	11.7	21.3
South Atlantic	24.1	19.4	36.4	19.2	16.8	27.7	13.9	12.3	23.3
Delaware	21.1	16.7	29.7	17.3	13.9	26.3	14.6	11.5	25.2
Maryland	21.8	17.7	33.1	19.4	15.7	29.1	14.9	11.6	21.9
District of Columbia	27.6	20.3	29.3	24.4	21.8	27.5	20.4	14.4	20.6
Virginia	23.8	19.2	36.3	18.6	15.9	28.4	14.7	12.6	22.3
West Virginia	21.9	21.3	30.2	19.1	18.6	31.5	14.9	14.3	23.7
North Carolina	24.0	18.3	34.8	21.3	16.8	28.1	13.6	12.1	24.4
South Carolina	24.3	20.1	39.4	22.1	17.1	29.4	17.7	13.8	25.1
Georgia	24.8	18.9	37.2	19.9	15.2	28.4	15.3	13.8	23.4
Florida	23.5	19.8	36.9	18.2	15.3	27.3	14.8	13.1	22.6
East South Central	24.1	20.9	39.8	20.7	17.8	30.7	15.2	13.3	23.9
Kentucky	22.3	21.3	31.4	17.1	16.9	23.7	13.0	12.1	20.6
Tennessee	23.2	19.9	34.9	19.5	16.9	29.4	14.8	13.6	23.7
Alabama	24.6	20.8	39.6	21.8	17.3	29.5	15.8	12.7	22.4
Mississippi	26.3	21.5	46.3	23.0	17.6	33.3	16.1	13.8	24.9
West South Central	21.8	19.6	35.6	19.3	17.3	27.1	14.5	13.6	22.9
Arkansas	22.9	19.1	33.6	19.1	16.1	34.3	15.0	13.6	22.3
Louisiana	25.4	19.3	36.6	20.5	16.9	26.3	[illegible]	13.4	24.1
Oklahoma	20.4	19.4	33.1	17.6	17.3	28.4	13.4	13.6	20.6
Texas	21.3	20.0	35.5	19.3	17.6	26.4	13.9	13.4	23.3
Mountain	21.2	19.8	38.3	16.4	15.9	24.5	12.1	11.7	19.7
Montana	21.4	20.5	*44.8	19.8	18.4	*26.7	13.8	13.8	*9.4
Idaho	19.9	19.7	*24.3	15.[illegible]	15.1	*22.7	11.8	11.1	*22.6
Wyoming	24.0	23.3	*48.5	19.8	19.8	*14.5	15.4	15.5	*28.6
Colorado	21.2	20.7	34.5	14.5	14.3	23.2	11.3	11.1	17.3
New Mexico	24.3	23.8	34.4	18.[illegible]	18.9	31.9	14.8	13.1	23.3
Arizona	22.5	21.7	37.8	18.[illegible]	18.4	26.6	13.4	13.4	20.4
Utah	16.7	16.1	*42.6	12.9	12.7	*15.1	10.7	10.7	*18.9
Nevada	21.6	20.8	31.9	18.5	17.9	24.8	13.9	13.1	21.3
Pacific	19.9	18.3	30.5	15.9	14.4	23.4	11.9	11.3	18.9
Washington	19.3	18.5	34.5	14.2	13.8	25.8	12.8	11.9	17.3
Oregon	19.8	18.5	27.9	13.6	13.4	20.2	11.9	11.9	17.7
California	19.9	18.3	30.1	16.4	14.8	23.7	11.7	11.1	19.1
Alaska	23.9	18.4	*37.5	18.4	16.7	*37.5	15.3	15.8	*16.1
Hawaii	18.8	17.3	*28.4	15.3	14.2	*13.7	10.9	10.4	*13.5

[1]Includes births and infant deaths occurring to nonresidents of the United States.
[2]Includes all other races not shown separately.

SOURCE: National Center for Health Statistics: Data compiled by the Division of Analysis from data compiled by the Division of Vital Statistics.

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Table 2.

INFANT MORTALITY RANKS*
PROVISIONAL INFANT MORTALITY RATES ACCORDING TO STATE:
UNITED STATES, AVERAGE ANNUAL 1980-1982**

Rank	1980-1982	Rates***
1	Wyoming	6.5
2	Idaho, Vermont	7.9
3	---	
4	Wisconsin	8.4
5	New Hampshire	8.7
6	Montana	9.1
7	Maine	9.2
8	South Dakota	9.3
9	Washington	9.6
10	New Mexico	9.7
11	Iowa, Kansas	9.8
12	---	
13	Minnesota	9.9
14	Hawaii	10.0
15	Massachusetts	10.3
16	California	10.5
17	Colorado	10.6
18	Nebraska	10.7
19	Arkansas, Connecticut	10.8
20	---	
21	Maryland	11.0
22	Ohio	11.1
23	Oklahoma, Utah	11.3
24	---	
25	Indiana, Pennsylvania	11.4
26	---	
27	New Jersey, Oregon	11.5
28	---	
29	Kentucky	11.6
30	Nevada	11.7

* A ranking of #1 indicates the lowest infant mortality rate.

** Provisional data by place of occurrence. Infant mortality rates are deaths under 1 year per 1,000 live births in a specified area.

*** These provisional average annual infant mortality rates are based on a simple average of the rates for each of the years 1980-1982. Final rates are determined by dividing the total number of infant deaths for the three year period by the total number of births.

Source: Compiled by the U.S. Department of Health and Human Services. Public Health Service. National Center for Health Statistics, May, 1983.

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Table 2. (continued)

INFANT MORTALITY RANKS*
PROVISIONAL INFANT MORTALITY RATES ACCORTING TO STATE:
UNITED STATES, AVERAGE ANNUAL 1980-1982**

Rank	1980-1982	Rates***
31	Texas	11.8
32	Arizona	12.0
33	Rhode Island	12.2
34	Delaware	12.3
35	Michigan, Virginia	12.4
36	---	
37	Alaska	12.5
38	West Virginia	12.6
39	North Dakota	12.7
40	New York	13.0
41	Georgia	13.3
42	Florida	13.5
43	Missouri	13.6
44	Illinois	13.8
45	North Carolina	14.0
46	Louisiana, Tennessee	14.1
47	---	
48	Alabama	14.2
49	Mississippi	15.3
50	South Carolina	15.4
51	District of Columbia	25.9

* A ranking of #1 indicates the lowest infant mortality rate.

** Provisional data by place of occurrence. Infant mortality rates are deaths under 1 year per 1,000 live births in a specified area.

*** These provisional average annual infant mortality rates are based on a simple average of the rates for each of the years 1980-1982. Final rates are determined by dividing the total number of infant deaths for the three year period by the total number of births.

Source: Compiled by the U.S. Department of Health and Human Services. Public Health Service. National Center for Health Statistics, May, 1983.

D. By Selected Cities *

Table 3 presents infant mortality rates in 1970, 1975 and 1979 for 26 cities whose populations were 500,000 or more in 1970. These are the cities for which the National Center for Health Statistics has collected data. As explained earlier, the annual variation is more pronounced at the city level because the numbers of infant deaths used to calculate rates tend to be smaller than for the States. The same overall downward trends in infant mortality rates may be observed, however, in spite of the effect of this variation. Similar discrepancies beween "White" and "All Other" races may also be observed.

* NOTE: Data are not available for the rural areas associated with these selected cities.

Table 3.

INFANT MORTALITY RATES FOR 26 CITIES OF 500,000 POPULATION:* 1970
(Rates per 1,000 Live Births)

City	White	All Other	Total
Baltimore	22.07	28.42	25.74
Boston	17.88	36.83	22.70
Chicago	20.03	34.45	26.75
Cleveland	20.17	30.35	24.73
Columbus, Oh.	1 .27	23.51	17.85
Dallas	18.11	32.24	22.79
Denver	17.82	17.29	17.75
Detroit	17.75	29.11	24.07
Houston	20.10	25.16	21.69
Indianapolis	20.56	23.91	21.43
Jacksonville, Fla.	15.63	33.13	20.49
Kansas City, Mo.	19.37	30.74	22.83
Los Angeles	16.20	27.65	19.48
Memphis	16.97	23.72	20.35
Milwaukee	15.20	30.50	18.83
New Orleans	20.60	30.22	26.11
New York	17.60	29.88	21.48
Philadelphia	22.48	34.05	27.60
Phoenix	14.09	23.50	14.91
Pittsburgh	19.40	38.08	25.29
St. Louis	15.06	34.82	25.26
San Antonio	19.30	25.54	19.81
San Diego	17.82	26.29	19.16
San Francisco	17.25	15.93	16.70
Seattle	18.12	30.22	20.57
Washington, D.C.	26.32	29.52	29.09

Source: Mortality Statistics Branch, Division of Vital Statistics, National Center for Health Satistics. Vital Statistics of the United States, v. II, Mortality. (Published and unpublished data.)

* Population as of 1970

Table 3. (continued)

INFANT MORTALITY RATES FOR 26 CITIES OF 500,000 POPULATION:* 1975
(Rates per 1,000 Live Births)

City	White	All Other	Total
Baltimore	21.8	25.1	23.9
Boston	14.6	21.0	17.1
Chicago	17.0	30.8	24.0
Cleveland	19.1	24.4	21.7
Columbus, Oh.	16.4	28.0	19.4
Dallas	15.3	20.9	17.5
Denver	12.1	24.0	14.1
Detroit	15.6	25.6	22.2
Houston	13.1	25.2	17.0
Indianapolis	12.0	22.2	14.7
Jacksonville, Fla.	12.4	26.4	16.8
Kansas City, Mo.	14.9	27.7	19.5
Los Angeles	10.9	22.0	13.9
Memphis	14.5	20.9	18.1
Milwaukee	13.9	20.2	15.9
New Orleans	15.7	26.0	23.1
New York	15.4	23.1	18.3
Philadelphia	18.9	27.7	23.1
Phoenix	16.2	24.2	17.1
Pittsburgh	17.4	28.9	21.5
St. Louis	17.1	27.2	23.2
San Antonio	11.8	24.4	12.8
San Diego	14.1	16.2	14.5
San Francisco	10.1	12.0	11.1
Seattle	13.6	19.8	15.2
Washington, D.C.	22.1	30.1	29.0

Source: Mortality Statistics Branch, Division of Vital Statistics, National Center for Health Statistics. Vital Statistics of the United States, v. II, Mortality. (Published and unpublished data.)

* Population as of 1970

Table 3. (continued)

INFANT MORTALITY RATES FOR 26 CITIES OF 500,000 POPULATION:* 1979
(Rates per 1,000 Live Births)

City	White	All Other	Total
Baltimore	20.8	23.7	22.8
Boston	11.8	20.5	15.5
Chicago	14.3	25.9	20.5
Cleveland	12.0	22.4	17.2
Columbus, Oh.	12.8	20.1	15.0
Dallas	12.8	22.1	16.4
Denver	10.5	10.5	10.5
Detroit	17.5	22.9	21.3
Houston	11.7	17.7	13.7
Indianapolis	13.5	21.4	15.7
Jacksonville, Fla.	11.2	25.0	15.9
Kansas City, Mo.	14.5	24.3	18.2
Los Angeles	10.8	17.8	12.8
Memphis	9.8	21.1	16.9
Milwaukee	10.2	17.2	12.7
New Orleans	13.4	23.5	20.9
New York	13.7	18.6	15.7
Philadelphia	14.9	21.4	18.2
Phoenix	15.1	24.9	16.2
Pittsburgh	13.4	30.0	19.1
St. Louis	13.0	26.1	20.9
San Antonio	15.0	14.6	15.0
San Diego	11.2	12.8	9.7
San Francisco	12.4	11.4	11.9
Seattle	13.0	15.2	13.7
Washington, D.C.	5.5	25.2	22.2

Source: Mortality Statistics Branch, Division of Vital Statistics, National Center for Health Statistics. Vital Statistics of the United States, v. II, Mortality. (Published and unpublished data.)

* Population as of 1970

E. By Race and National Origin

As shown in table 4, the 30 year downward trend in U.S. infant mortality for both Blacks and Whites has been at a nearly equal rate. Because of this equal rate of decline, the Black infant mortality rate remains nearly twice as high as the White rate.

As shown in table 5,* in 1970 the Black infant mortality rate was significantly higher than the total rate for both sexes. The American Indian infant mortality rate was slightly higher than the total rate for both sexes, while the Chinese and Japanese infant mortality rates were lower than the total rate for both sexes.

In 1975, the Black infant mortality rate continued to be significantly higher than the total rate for both sexes. The male American Indian infant mortality rate was one and three-fourths times as high as the total for both sexes, while the female American Indian rate was slightly lower. The Chinese and Japanese infant mortality rates were lower than the total rate for both sexes.

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* Table 5 is based on the most recent available compiled data.

Table 4.
INFANT MORTALITY RATES BY RACE: UNITED STATES, 1940-82
(Rates are deaths under 1 year per 1,000 live births in specified group)

Year	Infant mortality rate		
	Total	White	Black
1982[1]	11.2	...	...
1981[1]	11.7	...	...
1980[1]	12.5	...	...
1979[2]	13.1	11.4	21.8
1978[2]	13.8	12.0	23.1
1977[2]	14.1	12.3	23.6
1976[2]	15.2	13.3	25.5
1975[2]	16.1	14.2	26.2
1974[2]	16.7	14.8	26.8
1973[2]	17.7	15.8	28.1
1972[2,3]	18.5	16.4	29.6
1971[2]	19.1	17.1	30.3
1970[2]	20.0	17.8	32.6
1969	20.9	18.4	34.8
1968	21.8	19.2	36.2
1967	22.4	19.7	37.3
1966	23.7	20.6	40.2
1965	24.7	21.5	41.7
1964	24.8	21.6	42.3
1963[4]	25.2	22.2	42.8
1962[4]	25.3	22.3	42.6
1961	25.3	22.4	41.8
1960	26.0	22.9	44.3
1959	26.4	23.2	44.8
1958	27.1	23.8	46.3
1957	26.3	23.3	44.2
1956	26.0	23.2	42.4
1955	26.4	23.6	43.1
1954	26.6	23.9	42.9
1953	27.8	25.0	44.5
1952	28.4	25.5	46.9
1951	28.4	25.8	44.3
1950	29.2	26.8	45.9
1949	31.3	28.9	46.8
1948	32.0	29.9	45.7
1947	32.2	30.1	47.7
1946	33.8	31.8	48.8
1945	38.3	35.6	56.2
1944	39.8	36.9	59.5
1943	40.4	37.5	61.5
1942	40.4	37.3	64.2
1941	45.3	41.2	74.1
1940	47.0	43.2	72.9

1 Provisional data.
2 Excludes deaths of nonresidents of the United States.
3 Deaths based on a 50-percent sample.
4 Figures by color exclude data for residents of New Jersey.

Source: National Center for Health Statistics, Division of Vital Statistics

Table 5.

INFANT DEATHS (UNDER 1 YEAR) AND RATES BY SPECIFIED RACE OR NATIONAL ORIGIN AND SEX: UNITED STATES, 1970 AND 1975
[mortality rates per 1,000 live births in specified group]

	1970		1975	
	Number	Rate	Number	Rate
Total/All races				
Both Sexes	74,667	20.0	50,525	16.1
Male	42,847	22.4	28,812	17.9
Female	31,820	17.5	21,713	14.2
White				
Male	31,725	20.0	20,919	15.9
Female	23,151	15.4	15,254	12.3
Black				
Male	10,511	36.2	7,353	28.3
Female	8,176	29.0	6,056	24.0
Indian 1/				
Male	301	23.0	280	20.1
Female	268	21.0	211	15.5
Chinese				
Male	39	9.8	26	4.7
Female	27	7.1	17	4.1
Japanese				
Male	55	13.0	25	6.7
Female	32	8.0	26	7.0
Other races				
Male	216	16.1	215	11.1
Female	166	13.4	149	8.3

1/ Includes deaths among Aleuts and Eskimos.

Source: Adapted from U.S Department of Health, Education, and Welfare. Public Health Service. National Center for Health Statistics. Vital Statistics of the United States, 1970 (volume II — Mortality, Part A, table 2-3), and 1975 (volume II — Mortality, Part A, table 2-3).

F. By Selected Industrialized Nations

As shown in table 6, infant mortality rates in certain developed countries are comparable to each other. These are the countries for which such comparable data are readily available. The rates were obtained from civil registers. The U.S. infant mortality rate declined from 19.8 to 11.8 per 1000 live births between 1970 and 1979/1980, a 40 percent decline. However, out of 14 industrialized nations shown in table 5 for the years 1970, 1975 and 1979/1980, the U.S. infant mortality rate never ranked better than eighth, with the rank of #1 indicating the lowest infant mortality rate. Sweden, Norway, Denmark and Japan have consistently ranked as the countries with the lowest infant mortality rates. The highest infant mortality rates among these selected nations have been found in Poland and Italy (see table 6a).

Table 6.
INFANT MORTALITY RATES * 1/
SELECTED INDUSTRIALIZED NATIONS: 1970, 1975, 1979-1980

Country	1970	1975	1979/1980 2/
Austria	25.9	20.5	13.9
Canada	18.8 3/	14.3 3/	10.9
Denmark	14.2	10.4	8.5
East Germany	18.5	15.9	12.6
France	18.2	13.8	10.0
Italy	29.6	21.2	14.3
Japan	13.1 4/	10.1 4/	7.4
Norway	12.8 5/	11.1 5/	8.8
Poland	33.2	24.9	21.2
Spain	27.9 6/ 7/	12.1 6/ 7/	11.1
Sweden	11.0	8.6	6.7
United Kingdom (England, Wales)	18.1	15.7	11.8
United States	19.8	16.1	11.8
West Germany	23.6	19.8	12.1

* Infant deaths are deaths of live-born infants under one year of age; rates are per 1,000 live births.

1/ Statistics on the number of infant deaths are obtained from registers unless otherwise noted.

2/ Data refer to 1979 or 1980; further breakdown is not readily available.

3/ Includes Canadian residents temporarily in the United States, but excludes U.S. residents temporarily in Canada.

4/ For Japanese nationals in Japan only.

5/ Includes residents temporarily outside the country.

6/ Excludes deaths of infants dying before registration of births.

7/ Provisional data.

Sources: 1970 - Demographic Yearbook 1972, United Nations, 1973.
1975 - Demographic Yearbook 1978, United Nations, 1979.
1979/1980 - 1982 World Population Data Sheet, Population Reference Bureau, 1982.

Table 6a

INFANT MORTALITY RANKS*
SELECTED INDUSTRIALIZED NATIONS: 1970, 1975, and 1979/80

Rank**	1970	1975	1979/80
1	Sweden	Sweden	Sweden
2	Norway	Japan	Japan
3	Japan	Denmark	Denmark
4	Denmark	Norway	Norway
5	United Kingdom	Spain	France
6	France	France	Canada
7	East Germany	Canada	Spain
8	Canada	United Kingdom	United Kingdom/ United States
9	United States	East Germany	- - -
10	West Germany	United States	West Germany
11	Austria	West Germany	East Germany
12	Spain	Austria	Austria
13	Italy	Italy	Italy
14	Poland	Poland	Poland

* a ranking of #1 indicates the lowest infant mortality rate.

** calculated from Table 6

G. Percent Low Birth Weight By Race: United States and Each State

As shown in tables 7 and 7a, for all races between 1975 and 1980, the percent low birth weight (with low birth weight defined as infants weighing less than 2,500 grams or 5.5 pounds) declined for the United States as a whole, and for most States, while it rose for the following:

Alaska
Delaware
District of Columbia
Maine
Maryland
Tennessee

The U.S. total percent low birth weight declined from 7.4 to 6.8 (a decline of 8.1 percent) between 1975 and 1980.

For White infants, between 1975 and 1980, the percent low birth weight declined for the United States as a whole, as well as for most States, while the percent of low birth weights rose for the following:

Alaska
District of Columbia
Hawaii
Maine

and remained the same for Tennessee. For the United States as a whole, the percent low birth weight for White infants declined from 6.3 to 5.7 (a decline of 9.5 percent) between 1975 and 1980.

For Black infants, between 1975 and 1980, the percent low birth weight declined for the United States as a whole as well as for most States, while it rose for the following:

Arizona
Delaware
District of Columbia
Hawaii
Indiana
Iowa
Louisiana
Nebraska
South Dakota
Tennessee
West Virginia

and remained the same for Maryland and Massachusetts. For the United States as a whole, the percent low birth weight for Black infants declined from 13.1 to 12.5 (a decline of 4.6 percent) between 1975 and 1980.

Table 7.

PERCENT LOW BIRTH WEIGHT BY RACE: UNITED STATES AND EACH STATE, 1975

STATE	ALL RACES	WHITE	BLACK
United States	7.4	6.3	13.1
Alabama	8.4	6.4	12.2
Alaska	5.3	4.9	9.3
Arizona	6.6	6.4	10.9
Arkansas	8.2	6.6	13.1
California	6.2	5.6	12.0
Colorado	9.0	8.8	15.4
Connecticut	7.0	6.2	13.4
Delaware	7.5	5.9	13.1
District of Columbia	12.4	5.6	13.6
Florida	8.1	6.5	12.8
Georgia	8.9	6.6	12.9
Hawaii	7.7	5.8	9.5
Idaho	5.9	5.9	7.3
Illinois	7.7	6.0	14.0
Indiana	6.4	5.8	11.8
Iowa	5.6	5.4	11.8
Kansas	6.5	5.9	14.4
Kentucky	7.2	6.7	12.5
Louisiana	9.0	6.5	12.7
Maine	5.9	5.9	9.7
Maryland	8.0	6.2	13.0
Massachusetts	6.7	6.5	10.9
Michigan	7.4	6.1	13.7
Minnesota	5.5	5.3	12.5
Mississippi	9.5	6.5	12.7
Missouri	7.2	6.0	13.8
Montana	7.1	7.0	6.1
Nebraska	5.9	5.6	12.4
Nevada	7.3	6.7	13.1
New Hampshire	6.5	6.5	7.3
New Jersey	7.9	6.5	13.8
New Mexico	8.6	8.6	13.2
New York	8.0	6.7	13.0
North Carolina	8.7	6.7	13.4
North Dakota	5.4	5.3	9.7
Ohio	7.4	6.5	13.5
Oklahoma	7.4	6.9	13.3
Oregon	5.7	5.5	11.0
Pennsylvania	7.4	6.4	14.3
Rhode Island	6.9	6.6	12.6
South Carolina	9.0	6.5	12.9
South Dakota	5.6	5.4	5.7
Tennessee	7.9	6.4	13.0
Texas	7.7	6.6	13.9
Utah	5.5	5.4	10.0
Vermont	6.4	6.5	6.3
Virginia	7.7	6.2	12.6
Washington	5.9	5.6	10.9
West Virginia	7.4	7.3	9.9
Wisconsin	6.0	5.5	12.9
Wyoming	9.2	9.0	18.4

Source: Compiled by National Center for Health Statistics (Mar. 1983).

Table 7a.

PERCENT LOW BIRTH WEIGHT BY RACE: UNITED STATES AND EACH STATE, 1980 *

STATE	ALL RACES **	WHITE	BLACK
United States	6.8	5.7	12.5
Alabama	7.9	5.6	12.0
Alaska	5.4	5.0	6.3
Arizona	6.2	5.9	11.1
Arkansas	7.6	5.9	12.7
California	5.9	5.2	11.4
Colorado	8.2	7.9	14.4
Connecticut	6.7	6.1	11.5
Delaware	7.7	5.4	15.6
District of Columbia	12.8	6.3	14.0
Florida	7.6	6.0	12.2
Georgia	8.6	6.4	12.4
Hawaii	7.1	6.0	10.1
Idaho	5.3	5.3	3.9
Illinois	7.2	5.4	13.6
Indiana	6.3	5.6	12.1
Iowa	5.0	4.8	12.2
Kansas	5.8	5.3	11.6
Kentucky	6.8	6.3	11.9
Louisiana	8.6	6.0	12.8
Maine	6.5	6.4	7.4
Maryland	8.2	6.1	13.0
Massachusetts	6.1	5.7	10.9
Michigan	6.9	5.7	12.9
Minnesota	5.1	4.9	12.1
Mississippi	8.7	5.8	11.8
Missouri	6.6	5.6	12.9
Montana	5.6	5.5	1.9
Nebraska	5.6	5.2	12.6
Nevada	6.6	6.0	11.6
New Hampshire	5.4	5.3	6.8
New Jersey	7.2	5.8	12.7
New Mexico	7.6	7.6	7.8
New York	7.4	6.1	12.4
North Carolina	7.9	6.1	12.2
North Dakota	4.9	4.8	9.2
Ohio	6.8	5.7	12.9
Oklahoma	6.8	6.2	12.3
Oregon	4.9	4.7	10.4
Pennsylvania	6.5	5.6	13.0
Rhode Island	6.3	5.9	11.5
South Carolina	8.6	5.9	12.6
South Dakota	5.1	4.8	7.6
Tennessee	8.0	6.4	13.6
Texas	6.9	6.0	12.4
Utah	5.2	5.1	9.1
Vermont	5.9	6.0	
Virginia	7.5	5.8	12.3
Washington	5.1	4.8	10.2
West Virgina	6.7	6.4	12.3
Wisconsin	5.4	4.8	12.7
Wyoming	7.3	7.2	16.4

* By place of residence. Based on 100 percent of births in selected States and on a 50 percent sample of births in all other States.

** Includes races other than white and black.

Source: U.S. Dept. of Health and Human Services. Public Health Service. National Center for Health Statistics. Monthly Vital Statistics Report, v. 31, no. 8, Supplement, Nov. 30, 1982. p. 24

H. Summary

The available data show that the U.S. overall infant mortality rate has been steadily declining. Provisional data for 1982 indicate that the rate was 11.2 deaths per 1,000 live births, the lowest infant mortality rate ever recorded in the United States. Many factors can affect pregnancy outcome. Several, including better nutrition, a decline in smoking, wider availability of prenatal care, advances in medical science, and improved socioeconomic conditions, have contributed to declines in infant mortality rates.

As noted earlier, the Black infant mortality rate remains nearly twice as high as the White infant mortality rate. Several possible factors thought to contribute to this higher rate are highlighted in a comprehensive 1979 DHEW report entitled, Health Status of Minorities and Low-Income Groups. 36/ The chapter on "Reproductive and Genetic Health" presents an analysis of White vs. Nonwhite (including minority races other than Black) maternal and infant morbidity and mortality. The report points to such factors as higher teenage birth rates, more out of wedlock births, poorer prenatal care, adverse pre- and postnatal environmental influences, and other socio-economic, cultural, and racial/ethnic disparities as contributing to a higher proportion of low birth weight infants, and a correspondingly higher rate of infant morbidity and mortality among racial/ethnic minorities.

> Several physiological and sociological variables are correlated with the incidence of low birth weight. Gestation, birth order, prenatal care, maternal age, marriage status, and socioeconomic level are among the correlates. . . Since the rates for out of wedlock births and teenage fertility are higher among the racial/ethnic minorities, these groups are predisposed to low birth weight as a health problem. . . 37/

36/ U.S. Department of Health, Education, and Welfare. Public Health Service. Health Resources Administration. Office of Health Resources Opportunity. Health Status of Minorities and Low-Income Groups. DHEW Publication No. (HRA) 79-627. Washington, U.S. Govt. Print. Off., 1979, 275 pages.

37/ Ibid., pp. 57-77.

IV. FEDERAL PROGRAMS AFFECTING MATERNAL AND CHILD HEALTH

A number of Federal programs provide health and related services to mothers and children. However, no Federal program is exclusively targeted to decreasing infant mortality in this country. Three major programs providing health and health-related services to children are Medicaid, the Maternal and Child Health Services Block Grant, and the Special Supplemental Food Program for Women, Infants and Children. Others include Community Health Centers, Migrant Health Centers, Family Planning, and Childhood Immunizations. In addition, the Federal Government conducts certain research activities related to infant mortality.

A. Medicaid

The Medicaid program, authorized under title XIX of the Social Security Act, is a Federal-State entitlement program that purchases medical care for certain low-income persons. Within Federal guidelines, each State designs and administers its own program. Thus, substantial variation exists among the States in terms of persons covered, services offered, and amounts of payments for such services.

All States must provide Medicaid services to the "categorically needy". In general, these are persons receiving assistance from the Aid to Families with Dependent Children (AFDC) or Federal Supplemental Security Income (SSI) program, for the aged, blind, and disabled. States may also cover the "medically needy". These are persons who are aged, blind, disabled, or members of families with dependent children, and are unable to afford medical care, but whose incomes (after deducting incurred medical expenses) fall below the State medically needy standard. States having medically needy programs must, at a minimum, provide ambulatory services for children and prenatal and delivery services for pregnant women.

States are required to offer the following services to categorically needy recipients under their Medicaid program: inpatient and outpatient hospital services; laboratory and X-ray services; skilled nursing facility (SNF) services for those over age 21; home health services for those entitled to SNF care; early and periodic screening, diagnosis, and treatment (EPSDT) for those under age 21; family planning services and supplies; physicians' services; rural health clinic services; and certified nurse midwife services. States may limit the amount, duration and scope of the services they offer (e.g., 14 hospital days per year, 3 physician visits per month). In addition, the States may impose nominal cost-sharing on all persons for all services with certain major exceptions. These exceptions include, among others, charges on children under age 18, pregnancy-related services, and family planning services and supplies.

The Federal Government is required to match whatever States spend for covered services to eligible persons. The Federal Government's share of Medicaid is tied to a formula which is inversely related to the per capita income of the States. Federal matching for services varies from 50 to 78 percent. Total FY 1983 Medicaid costs are estimated to be $35.5 Billion (Federal - $19.3 Billion; State - $16.2 Billion). In 1982, the most recent year for which data are available, Medicaid provided services to an estimated 9.3 million children under age 21.

B. Maternal and Child Health (MCH) Services Block Grant

The Maternal and Child Health (MCH) Services Block Grant, authorized under title V of the Social Security Act, provides health care services to mothers and children, including those with low income or with limited access to health services. The purposes of the block include, among others, reducing infant mortality, reducing the incidence of preventable disease and handicapping conditions among children, and increasing the availability of prenatal, delivery, and postpartum care to low income mothers.

Eligibility criteria under the block may be set by the States themselves. States are allowed to charge for services provided; however, mothers and children whose incomes fall below the poverty level (currently $9,300 for a family of four) may not be charged for services.

States determine the services to be provided under the block. Services can include prenatal care, well-child clinics, immunizations, vision and hearing screening, dental care, and family planning. They may also include inpatient services for crippled children, screening for lead-based paint poisoning, or counseling services for parents of Sudden Infant Death victims.

In FY 1983, 85 percent of the block grant appropriation is allotted among States. Each State's individual allotment is based on the proportion of funds allotted to all States in FY 1981 for certain programs now included in the block. These programs are MCH and crippled children's services, supplemental security income services for disabled children, lead-based paint poisoning prevention, sudden infant death syndrome, and adolescent pregnancy. For each $4 in Federal funds States receive, they must spend $3 of their own funds.

A portion of the block's appropriation is reserved under a Federal set-aside. In FY 1983, 15 percent of this appropriation is reserved for MCH special projects of regional and national significance (such as Improved Pregnancy Outcome projects), research and training, and genetic disease and hemophilia programs. These programs are Federally administered.

The MCH Block Grant received $373 million, its full authorization level, in FY 1983 under a continuing resolution. P.L. 98-8, the Emergency Supplemental Appropriations bill, will provide an additional $105 million for the block in FY 1983. No data are available on the numbers of persons served by the MCH Block nationwide.

C. Special Supplemental Food Program for Women, Infants, and Children (WIC)

The Special Supplemental Food Program for Women, Infants and Children (WIC) is authorized under Sec. 17 of the Child Nutrition Act of 1966, as amended, and is administered by the Department of Agriculture (USDA). The program provides specified supplemental foods (in the form of actual food items, or vouchers for specific food items redeemable at local gocery stores), certain health services such as diagnostic services (does not include treatment services), and nutrition education to participants.

Program participants are low-income pregnant and postpartum mothers, and infants and children through age 4 who are medically certified to be at risk because of inadequate nutrition or poor health or both. Income standards may be set by State or local

agencies operating programs; however, they may not be set higher than the reduced price school lunch income eligibility standards (i.e., 185 percent of the poverty level, currently $17,210 for family of four), or lower than 100 percent of this poverty level, ($9,300 for a family of four). By law, beneficiaries are to receive, at no cost, supplemental foods containing protein, iron, calcium, vitamin A and vitamin C. These foods are provided monthly and include milk, cheese, eggs, infant formula, cereals and fruit or vegetable juices.

The Federal Government awards grants to State Health Agencies or comparable agencies and to recognized Indian groups acting as State agencies to administer WIC programs. The States' funding formulas are published each year in the Federal Register. No State matching is required. WIC programs are operated mostly by local health departments.

In FY 1983, WIC expenditures are estimated at $1.1 Billion. In FY 1982, the most recent year for which data are available, the average monthly participation rate in WIC was 2,188,508 persons (477,471 women; 623,225 infants; and 1,087,812 children). There were 7,037 WIC clinics in operation in FY 1982.

Also administered by the USDA is the Commodity Supplemental Food Program (CSFP), a predecessor to the WIC program, which currently operates along side of, or in place of, WIC programs in 21 project areas. Persons may participate in one or the other of these programs, but may not participate in both. The CSFP program also provides food to pregnant and post-partum, low-income women, and infants and children. However, the food items are commodities purchased in bulk by the USDA and shipped to warehouses operated by States or local operators. WIC food items are usually purchased in local grocery stores by the agency providing the benefits. In addition, no Federal eligibility criteria exists for the CSFP program. State and local agencies establish such criteria including income eligibility.

There were 25 CSFP projects in FY 1982. Total expenditures for the CSFP program are estimated at $35.7 million for FY 1983. The annual average monthly participation rate in these projects was 126,365 (26,110 women; 23,837 infants; and 76,418 children).

D. Other Programs

1. Community Health Centers

Sec. 330 of the Public Health Service (PHS) Act provides grants to public and nonprofit private entities to operate community health centers (CHCs). These centers provide comprehensive health services in low-income urban and rural communities or neighborhoods which have been designated as medically underserved areas. CHCs offer a range of primary health services on an ambulatory basis, including diagnostic, treatment, preventive, emergency, transportation, and preventive dental services; and can arrange and pay for hospital and other supplemental services in certain circumstances.

As of Oct. 1, 1982, States could begin administering CHCs under the Primary Care Block Grant, authorized under Title XIX of the PHS Act. However, in December 1982, a District Court judge issued a permanent injunction prohibiting the Department of Health and Human Services (DHHS) from awarding grants under the Primary Care Block Grant. As a result, these centers will continue to be administered by the Federal Government until the injunction is dissolved. In FY 1983, CHCs will receive $295 million under a continuing resolution. P.L. 98-8 will provide an additional $65 million for CHCs and migrant health centers in FY 1983 to expand the availability of essential health care services for the disadvantaged and unemployed, including those in rural towns and villages. The Act requires that $5 million of this sum be for the provision of home health services at centers. In addition, centers may apply up to 20 percent of these additional funds for the purchase of inpatient hospital services for delivery and postpartum care to pregnant women and infants who have no other source of payment for care.

There are now 588 rural and urban CHC grantees serving about 4.5 million medically underserved urban and rural residents. About 58 percent of the medical users of CHCs are women between the ages of 20 and 44 and children under age 15.

2. Migrant Health Centers

The migrant health centers program, under Section 329 of the PHS Act, provides grants to public and non-profit private agencies for the operation of health clinics for both migratory and resident seasonal farm workers living in communities which experience influxes of migrant workers. These centers offer primary health services. The program will receive $38.1 million in FY 1983 under a continuing resolution. P.L. 98-8 will provide an additional $65 million for migrant health centers and CHCs in FY 1983 (see discussion under CHCs as to how these funds will be allocated). Migrant health centers, which number 128, will serve approximately 394,000 persons (252,160 migrants; 141,840 seasonal farm workers) in FY 1983. An estimated 60 percent of the medical users of migrant health centers are women between the ages of 20 and 44 and children under age 15.

3. Family Planning

The family planning program, title X of the PHS Act, authorizes support for family planning clinics, training of family planning personnel, and development and dissemination of family planning and population growth information to all persons desiring such information. Most of title X's funding is awarded to public or non-profit private agencies to operate family planning clinics. Services offered at these clinics typically include medical examinations, counseling, pregnancy tests, information and education activities, birth control, natural family planning, and infertility services. In FY 1983, the program will receive $124.1 million for 88 project grants to directly support approximately 4,000 clinics, as well as for training and information and education activities. Approximately 3.3 million women and teenagers will receive family planning services under the program in FY 1983.

4. Childhood Immunization Program

Sec. 317 (j) of the PHS Act provides grants for vaccine and personnel to State and local authorities to protect children against such preventable diseases as polio, measles, tetanus, and diptheria. Included among the program's activities is a special effort to inform new mothers, while they are still in the hospital, about the necessity of immunizing their infant, and where to go to have the infant immunized. Appropriations for the program totalled $27.4 million in FY 1983. About 5.3 million children will be immunized in 1983.

E. Research

1. National Institutes of Health (NIH) Biomedical Research Program

Title IV of the PHS Act provides for the establishment of the national research institutes which together make up the National Institutes of Health (NIH). Specifically, the National Institute of Child Health and Human Development (NICHD), authorized under Sec. 441, and the National Institute of General Medical Sciences (NIGMS), authorized under Sec. 442, support research in areas related to maternal and infant health factors that may contribute to infant mortality. The NIGMS supports basic research studies to increase our knowledge and understanding of various genetic diseases, among other areas of research. The NICHD supports and conducts research efforts to improve the health and well-being of infants, children and adults. Much of the Institute's work focuses on increasing our understanding of normal human development, and includes the study of the reproductive sciences, pregnancy, labor, birth, prematurity, low birth weight, congenital defects, infant mortality, and maternal and child health in general. Other Institutes support research on such areas as infant heart, lung, or blood disorders, neurological problems, digestive diseases, maternal diabetes, and maternal and infant nutritional requirements.

2. National Institute on Alcohol Abuse and Alcoholism (NIAAA) Research Activities

Research activities related to alcoholism are authorized under Section 301 of the PHS Act and Section 504 of the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended. The purpose of the NIAAA research program is to develop new knowledge relevant to the prevention of alcohol abuse and to the treatment of alcoholism and alcohol-related illness. NIAAA supports, among others, research projects which examine the effects of maternal drinking on the fetus. According to DHHS, between 1800 and 2400 babies are born every year in this country with Fetal Alcohol Syndrome (FAS), caused by maternal drinking during pregnancy. FAS is one of the leading causes of mental retardation and is responsible for a wide range of other severe and irreversible abnormalities. All FY 1983 research awards have not yet been made. In FY 1982, 14 of 118 research grants were related to fetal alcohol syndrome. Funding for these 14 grants amounted to slightly less than $1.4 million.

GLOSSARY

Bone calcification: the process by which bones become hardened by the depositing of calcium salts.

Congenital: referring to conditions that are present at birth, regardless of their causation.

Gestation: the period of development of the fetus from the time of fertilization of the egg until birth.

Infant mortality: death of a live born infant under one year of age; usually expressed as a rate per 1,000 live births.

In utero: within the uterus.

Low birth weight infant: an infant weighing 2,500 grams (5 pounds, 5 ounces) or less.

Miscarriage: loss of the products of conception from the uterus before the fetus is viable.

Morbidity: the extent of illness, injury, or disability in a defined population.

Neonatal death: the death of a live born infant before the first 28 days of life.

Perinatal death: death during the period shortly before and after birth (generally considered to begin with the completion of the 28th week of gestation, and to end one to four weeks after birth).

Premature infant: Infants born usually after the 27th week and before full term; defined as an infant weighing 1,000 to 2,499 grams (2.2 to 5.5 pounds) at birth, and having a poor to good chance of survival, depending on the weight.

Prenatal: existing or occuring before birth, with reference to the fetus.

Stillbirth: the delivery of a dead child.

Sources: Dorland's Illustrated Medical Dictionary, 25th ed. W.B. Saunders. (Philadelphia), 1974.

U.S. Congress. House. Interstate and Foreign Commerce Subcommittee on Health and the Environment. A Discursive Dictionary of Health Care. (Committee Print), Washington, U.S. Govt. Print. Off., Feb. 1976.